

REMARKS

Amendments

Support for the amendment to claim 26 is found in the specification, for example, on page 22, line 2.

The Office Action

Claims 26-63 are pending. Claims 26-50 stand rejected for containing subject matter not described in the specification. Claims 51, 52, and 57-63 stand rejected for indefiniteness. Claims 53-56 are allowed.

Rejections Under 35 U.S.C. § 112, first paragraph

Claims 26-50 stand rejected for reciting new matter. Applicants traverse this rejection as applied to amended claim 26.

In response to the Examiner's statement that "amended claim 26 does not limit substitution of the nitrogen atom to solely alkylation," Applicants have amended claim 26 to replace "wherein the degree of substitution on said nitrogen atoms is $\leq 24.5\%$ " with "wherein the degree of alkylation on said nitrogen atoms is $\leq 24.5\%$." Applicants further note that this limitation refers only to the degree of substitution by alkyl groups on the nitrogen atoms of the instantly claimed compositions.

Regarding the rejection of claim 26 for reciting the language "seven or more nitrogen atoms" and "wherein the base skeleton does not comprise a carbonyl group," the

Examiner has repeated verbatim the rejection from the previous Office Action without comment on Applicants' amendments and arguments in the Reply filed on November 21, 2002. In particular, the instant claims previously were amended to remove the language "wherein the base skeleton does not comprise a carbonyl group," and this rejection is therefore moot.

Applicants' previous arguments regarding the language "seven or more nitrogen atoms" in claim 26 are reiterated and expanded upon as follows. The Examiner states that "the specification as filed ... does not disclose '300 Da' as a molecular weight" and that "it is unclear what calculations Applicants used to determine wherein a molecular weight of 300 Da, corresponds to a polyethylenimine of seven nitrogen atoms." Applicants maintain that one skilled in the art would know that a value of molecular weight is given in Daltons, since Dalton is the universal unit of molecular weight. Furthermore, the use of grams and moles in the Examples is an indication of the amount of a particular compound used in a synthesis or experiment and not the molecular weight. In view of the Examiner's continued objection of use of the term "Da," however, Applicants note that molecular weight may also be given as a unitless quantity and enclose pages 58, 59, and 61 from Petrucci *General Chemistry*, 5th ed. to illustrate this point (see especially the definitions of atomic and molecular weight on page 61). The calculations are the same and yield the same result whether Daltons or a unitless molecular weight is employed, i.e., a unitless molecular weight of 300 is equivalent to 300 Da.

The calculations used to determine seven nitrogen atoms from a molecular weight of 300 are as follows. The molecular weight of a unit of ethylenimine ($-\text{CH}_2\text{CH}_2\text{NH}-$) is about 43 ($(2 \times 12) + (5 \times 1) + (1 \times 14)$), where the atomic weights of C, H, and N are about 12, 1, and 14, respectively. Seven units of ethylenimine weigh 301 (7×43). Since each ethylenimine unit has one nitrogen atom, a polyethylenimine having a molecular weight of 300 or more necessarily has seven or more nitrogen atoms. In reply to the Examiner's statement that "Applicants have not accounted for the contribution of other molecules in the polyethylenimine structure," Applicants amended the claim to require that the base skeleton has seven or more nitrogen atoms. Support for this amendment is found in the discussion on page 10, lines 2-23 of the specification in which it is clear that the molecular weights listed are for the polyalkylenimine base skeletons that may be used in the synthesis of the compositions of the invention. For example, a molecular weight of 600 is given for EPOMINE, which is a commercially available compound that may be used in the manufacture of the instantly claimed compositions.

Based on the foregoing remarks, the rejection of claims 26-50 for new matter should be withdrawn.

Rejections under 35 U.S.C. § 112, second paragraph

Claims 51, 52, and 57-63 stand rejected for indefiniteness because claims 51 and 52, from which claims 57-63 depend, recite the terms "about 600 Da" and "about 1800 Da." Applicants note that claim terms must be analyzed in light of "the interpretation that

would be given by possessing the ordinary level of skill in the pertinent art at the time the invention was made” (M.P.E.P. § 2173.02).

In rejecting these claims, the Examiner states “that the ordinary skilled artisan would be [un]able to ascertain the metes and bounds of the claimed invention,” because the specification does not provide a definition for the term “about.” Applicants respectfully disagree. Commercially available polymers are typically produced as mixtures of individual polymers having varying numbers of monomer units. Because of this variation, polymers are described by an average molecular weight. Furthermore, this value is typically rounded to the nearest 100, e.g., 600 or 1800. In support of this position, Applicants submit a Declaration by Naoto Oku. Thus, one skilled in the art would understand the metes and bounds of the terms “about 600 Da” and “about 1800 Da” because such terms are routinely used in the field of polymer science to describe particular compounds. As such, an explicit definition in the specification is not needed, and the rejection should be withdrawn.


CONCLUSION

Applicants submit that the claims are in condition for allowance, and such action is respectfully requested.

Enclosed is a petition and required fee to extend the period for reply for three months, to and including November 28, 2003. If there are any additional charges or any credits, please apply them to Deposit Account No. 03-2095.

Respectfully submitted,

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